

OP16

Positive correlation between Somatic Cell Count and Beta – Casomorphin 7 level in cow milk

**P. Valentina Claudet , Thiyagarajan Sanjeevi, P. Azhahianambi, R. P. Aravindh Babu,
Prathap Somasundaram, M. Raman , G. Dhinakar Raj**

*Translational Research Platform for Veterinary Biologicals (TRPVB), TANUVAS
Madhavaram Milk Colony, Chennai -51
v.teenaval@gmail.com*

Somatic cell count (SCC) is an important trait indicating udder health and quality of milk. Proteolytic enzymes like pepsin, elastase are released from somatic cells, lead to cleavage of β -casein into a seven amino acid peptide, beta-casomorphin-7 (BCM-7). BCM-7 is structurally similar to morphine and exerts morphine like effect in the consumers. BCM-7 levels and somatic cell counts were analyzed in milk samples (n= 100)

collected from cattle of different β -casein genotypes (A1/A1, A1/A2, A2/A2). The results showed positive correlation ($R= 0.51$) between SCC and BCM-7 level and 26% ($R^2 = 0.26$) variance in the BCM-7 level was explained by SCC. To confirm the role of SCC in BCM-7 level, somatic cells were isolated from milk and different numbers (10000, 25000, 50000, 100k and 200k) of somatic cells were incubated with A1/A2 β -casein (100ng/ μ l) and the levels of BCM-7 was estimated using a commercial ELISA kit. Positive correlation ($R= 0.87$) was obtained between the SCC and BCM-7 level indicating the cleavage of β -casein in to BCM-7 as was hypothesized. SCC in cow milk explains 77% ($R^2 = 0.77$) variance in the BCM-7 concentration. These preliminary results indicated the impact of SCC on BCM-7 level and cow milk quality.